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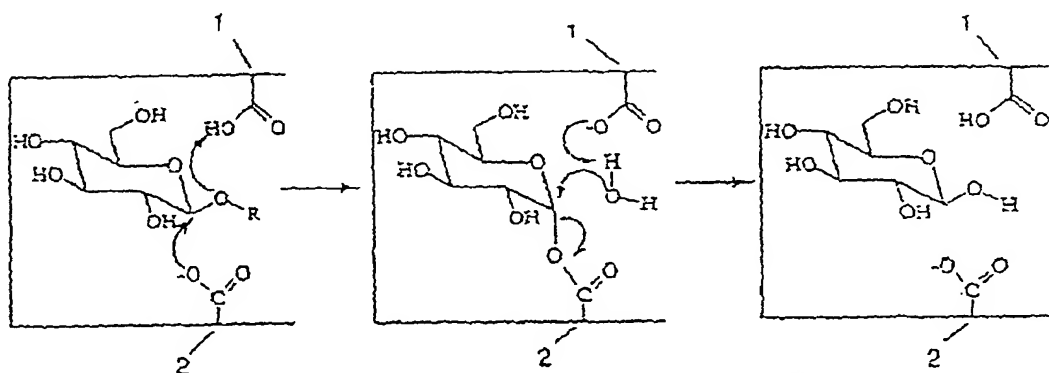
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(54) Title: **ENGINEERED ENZYMES AND THEIR USE FOR SYNTHESIS OF THIOLYCOSIDES**



(57) **Abstract:** Mutant glycosidases in which the amino acid in the active site that serves as the acid, base or acid/base-catalyst is converted from a carboxylic acid to some other amino acid (for example to a simple alkyl, as in alanine or glycine) can catalyze the reaction of a thiosugar acceptor and an activated donor to form a thiolglycoside. The "thiolglycoligases" represent a novel class of mutant enzymes, and represent a first aspect of the invention. Thiolglycoligases can be used in accordance with the method of the invention to couple a thiosugar acceptor and an activated donor to form a thiolglycoside. By selection of the donor and acceptor species, as well as the specific enzyme employed, thiolglycosides of different structure and stereochemistry can be obtained.

WO 2004/024908 A1